

COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

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Notice of Inquiry)	
Service Quality Standards in PBR Filings)	D.T.E. 99-84
)	

**SUPPLEMENTAL, POST-TECHNICAL SESSION JOINT COMMENTS OF
UTILITY COMPANIES ON DEPARTMENT’S PROPOSED SERVICE QUALITY
GUIDELINES ESTABLISHED IN D.T.E. 99-84**

On November 28, 2000, the Department of Telecommunications and Energy (the “Department”) conducted a technical session relating to comments filed in response to an order issued by the Department on August 17, 2000 in Notice of Inquiry on Service Quality Standards, D.T.E. 99-84 (the “August 17 Order”). At that technical session, the Department solicited follow-up information from utility companies regarding certain issues that were discussed. These supplemental joint comments are submitted on behalf of ten investor-owned local gas distribution companies¹ (the “LDCs”) and five investor-owned electric distribution companies² (the “Electric Companies”) (collectively, the “Utility Companies”) in response to those requests.

The four issues for which the Department sought additional comments are:

(1) clarification of the manner in which electric companies are able to record and report

¹ Bay State Gas Company, The Berkshire Gas Company, Blackstone Gas Company, Boston Gas Company, Colonial Gas Company, Commonwealth Gas Company, Essex Gas Company, Fall River Gas Company, Fitchburg Gas and Electric Light Company and North Attleboro Gas Company (collectively, the “LDCs”).

² Boston Edison Company, Cambridge Electric Light Company, Commonwealth Electric Company, (collectively, “NSTAR Electric”) Fitchburg Gas and Electric Light Company (“Fitchburg”) and Western Massachusetts Electric Company (“WMECo”) (collectively, the “Electric Companies”).

on momentary interruptions; (2) the use of a password-protected Internet Web site for reporting of accident and outage information; (3) the use of Restricted Work Days as a safety metric; and (4) the updating of benchmarks during the term of a performance-based ratemaking (“PBR”) plan.

I. MOMENTARY OUTAGES OF ELECTRIC SERVICE

In the August 17 Order, the Department ordered electric companies to collect and report data on Momentary Average Interruption Frequency Index (“MAIFI”). August 17 Order at 28-29. MAIFI is an index that reflects the average number of short-term (momentary) interruptions of electric service on a system-wide basis. Id.; Attachment A at 2. In addition, in standardizing the System Average Interruption Duration Index (“SAIDI”), the Department proposed to define “momentary outages,” which are excluded from the calculation of SAIDI, as an outage or interruption of electric service of less than five minutes.³ Id.

³ In developing this response, it became apparent that “Sustained Outage” must be defined on a company-specific basis consistent with a company’s definition of “Momentary Outage” (e.g., both in relation to an outage of one minute or more or an outage of five minutes or more), otherwise an internal conflict would be created. This issue became apparent because, in the Joint Comments, the Utility Companies proposed a standardized definition of SAIDI, that would exclude “Momentary Outages” (Joint Comments at 12-13, Proposed Guidelines at Section V). As noted in the Joint Comments, all electric companies currently calculate SAIDI by measuring outages that exceed a certain duration, i.e., by measuring “sustained outages.” There are differences among the companies, however, with respect to the minimum number of minutes that constitutes a “Sustained Outage” (Joint Comments at 13). For instance, NSTAR Electric and Fitchburg currently include outages of one minute or more in duration in the calculation of SAIDI, while WMECo includes outages of five minutes or more (id. at 13, fn.9). Therefore, in order to devise a standardized definition of SAIDI, the Utility Companies proposed to modify the definition of “Momentary Outages” (Proposed Guidelines at Section I.B). In addition, however, the Utility Companies propose to similarly define “Sustained Outages” to permit each company to continue to define those terms (and consequently to continue to collect data on SAIDI), consistent with the company’s historical practices. Specifically, the Utility Companies would propose to define “Sustained Outages” as follows:

At the technical conference, it became clear that historically, electric companies have not collected data on short-duration or “Momentary Outages,” and that their technical capabilities to do so were limited. The Department Staff requested that electric companies report back on this issue. Although the electric companies define the duration of “sustained” and “momentary” interruptions differently, the primary distinction between a momentary and sustained interruption is the manner in which restoration occurs. Momentary interruptions are generally restored “automatically” via relaying or other intelligence, after a brief time interval. Sustained interruptions are generally restored through human action. Therefore, sustained interruptions (or permanent outages) are always known to the utility and are recorded when they occur. This is not the case with momentary outages.

Momentary outages are generally associated with automatic switching and reclosing operations, most typically relating to circuit breakers (equipped with a reclosing relay) or with automatic circuit reclosers. Some utilities may deploy other types of distribution automation include automatic closing and switching schemes. In all cases, an interrupting device opens to interrupt a short circuit on the system, and reclosing occurs automatically after a brief time delay (e.g., 15-20 seconds). Reclosing operations may be repeated several times if the problem that caused the short circuit persists on the system.⁴ These operations occur automatically, with no human intervention.

“Sustained Outage” or “Sustained Interruption” shall mean an outage or interruption of electric service for a minimum time period as established historically by the company, but in no event shall a Sustained Outage or Interruption mean an outage or interruption of electric service of less than one minute.

⁴ In many cases, after repeated reclosings, the device will lock out and the momentary outage will become a sustained outage for the portion of the circuit downstream of the device.

Depending on the type of devices employed, the utility often has no way to know that a momentary interruption has occurred. Many types of automatic circuit reclosers provide no indication of an operation other than a “counter” that can be read through field inspection. Furthermore, such interruptions do not typically result in customer calls. Therefore, recording the outage at the earlier of an automatic alarm or the first report of no power may not identify momentary interruptions that may be occurring on the system. The utility has no way to know that a momentary interruption has occurred unless the interrupting device is connected to a SCADA system or some type of event recorder. Only a small percentage of reclosing devices are radio controlled and allow for the remote monitoring of momentary outages for portions of circuits.

An additional issue relates to line reclosers that are installed on distribution circuits, many of which are single-phase devices. These reclosers are designed and constructed to be simple, inexpensive and reliable. The control mechanism is generally hydraulic and such reclosers have no communication capabilities or electronic features. Because of their low cost and simple installation, line reclosers may be installed extensively on the distribution system, providing significant benefits to overall reliability performance. Because reclosing operations associated with momentary outages occur automatically, often without the knowledge of system operators or field personnel, collecting such data often requires manual inspection of counter readings in the field via a mechanical counter mounted on the recloser. The counter can be viewed from the ground only with binoculars. If a utility has a large number of such reclosers, it is impractical to read all the counters on a regular basis.

In order to record and report all momentary outages, the existing reclosing devices would have to be modified and connected to radio-controlled devices. To install and manage thousands of radio-controlled devices would be a very expensive and impractical proposition, resulting in no improvement of service reliability to customers. Recording momentary outages at the substation level, for whole circuits, feeders and transmission lines, may be feasible for some companies, but would have to be evaluated on a company-by-company basis. For instance, some companies have SCADA systems that provide alarms or otherwise report the operation of substation breakers. In the event that this information is not available via SCADA, counter readings would have to be collected during substation inspections.

Accordingly, as set forth in the Joint Comments, the Utility Companies recommend that “Momentary Outages” and “Sustained Outages” be defined on a company-specific basis to conform with historical data that underlies their respective SAIDI calculation. In addition, to the extent that the Department is interested in evaluating a company’s capability to identify and/or measure momentary outages, it should do so on a company-specific basis. This would provide the Department with an opportunity to assess whether and how a company is able to collect data on momentary outages and whether the cost that would be need to be incurred to measure such outages would be warranted.

II. ELECTRONIC OUTAGE AND ACCIDENT REPORTING

The Utility Companies believe that the electronic reporting of outages and accidents could be useful to inform the Department of reportable outages and accidents in a timely and cost-effective manner. Access to a secure Web site may be a reasonable

way to transmit such information, if security protocols and procedural logistics about the form and content of such reporting can be worked out. In addition, the scope and timing of the filing of reports need to be addressed. The Department Staff also indicated that such information would be publicly posted on a Web site. The Utility Companies would caution the Department that early, preliminary data about outages and accidents should not be made public until facts are confirmed. Protocols between the companies and the Department should address this issue.

The Utility Companies are eager to work with the Department Staff to establish procedures for an efficient system to ensure that outage and accident reports are filed electronically. Through such an informal process, systems and operational personnel of the companies and the Department can determine the most efficient and effective ways to establish Internet-based filing of reports.⁵

III. RESTRICTED WORK DAYS

In its November 8, 2000 Supplemental Comments, the Utility Workers Union of America (the “UWUA”) requested that the Department reconsider its determination not to include restricted work days as a measure for employee safety. Although the Department adopted Lost Work-Time Accident Rate as the performance measure for safety (August 17 Order at 19), the UWUA asked that restricted work days be reconsidered by the Department for inclusion in the safety measure (UWUA

⁵ If the scope or complexity of reporting requirements is increased significantly or if the timing of the electronic filing of information is accelerated appreciably, companies may need to make major changes or enhancements to systems or operational procedures. As with any large expenditures that may be required to comply with the requirements established by the Department in this proceeding, there will be associated cost implications, and therefore, the issue of cost recovery will have to be addressed.

Supplemental Comments at 2-3).⁶ There is no justification to warrant the Department reconsidering its decision on this issue.

The Department correctly rejected the use of restricted work days “because a worker can be placed on restricted work for non-safety reasons.” August 17 Order at 19. This is appropriate. As noted by UWUA, the Occupational Safety and Health Administration (“OSHA”) requires employers to report workplace-related injuries or illnesses that result in lost work days or restricted work days (UWUA Supplemental Comments at 2). However, as acknowledged by the Department, not all “workplace-related” injuries or illnesses are safety related. That is, the statistics reported to OSHA reflect injuries or illnesses that an employee experiences during the course of performing his or her job. Any number of injuries or illnesses can occur while an employee is on the job, but such an occurrence does not necessarily suggest that a safety problem exists with respect to the company’s operations.

Moreover, the ability to place employees on restricted work duty is important to both employees and the company. Without restricted work duty, companies would be unable to accommodate employees who are ready, willing and able to make a meaningful contribution to utility operations, even if not in his or her normal job. Including restricted work days in the safety measure would provide a strong financial incentive for utility management to increase the review of such requests and to be less accommodating to employees. The lost work-time accident rate captures the more serious, safety-related injuries without creating adverse incentives for utility management, and therefore, was

⁶ If the UWUA proposal is to treat restricted work days as a separate additional metric, the weighting and corresponding penalty would need to be apportioned between the lost work-time accident rate metric and a restricted work day case rate (rather than the number of restricted work days).

appropriately included by the Department as a safety performance measure. No compelling reason has been offered for reconsideration.

IV. UPDATING BENCHMARKS FOR IMPOSITION OF PENALTIES

The final issue raised by the Department at the technical session relates to the updating of historical performance data during the term of a PBR plan. As the Utility Companies stated in their November 9, 2000 comments, As the Utility Companies stated in their November 9, 2000 comments, the standard deviation approach to deadband calculation is not statistically valid because it does not control the probability of Type I error, i.e., the likelihood that a utility will be falsely judged to have a deteriorating service-quality effort. In that regard, the deficiency of the standard deviation approach is that it does not account for the fact that a performance metric is a random variable and a sample mean of recent values of the metric is only an estimate of the true mean of its distribution. Uncertainty regarding the true mean is increases as the sample size decreases. The Utility Companies have proposed an approach to deadband determination using test statistics and a 95 percent confidence level, which is expressly designed to control for the probability of a Type I error occurring. Accordingly, the proposal of the Utility Companies accounts for the uncertainty associated with the small number of years of available data. This methodology (including the 95 percent confidence level) is statistically valid and has been approved by the Department and the Federal Communications Commission for service-quality standards applied to Verizon (Joint Comments at 27-28).

As noted by the Utility Companies, a minimum of three data points are necessary in order to establish a valid deadband using a Test Statistic (id., Appendix B at 17). If a

company has at least three years of historical data at the implementation date of a PBR plan, a benchmark and deadband should be established based on those historical data. That benchmark should remain fixed for the term of the plan in order to determine if there is degradation of service in comparison to historical levels during the term of the PBR plan. As noted by the Department, the data should be company-specific historical data to allow “a comparison of the company’s performance to a fixed benchmark for the entire PBR cycle.” August 17 Order at 52. Including additional data could lower or raise the benchmark during the term of the PBR plan, and therefore, the new benchmark would not properly measure whether the PBR plan resulted in poorer service than had been historically offered by the utility.

For example, if service was declining during the term of the PBR plan, a recalculated benchmark could capture that decline in service and establish a benchmark that could result in a situation where a company is not penalized in the next year for declines in service in comparison to historical levels. Conversely, if service has improved, the recalculated benchmark could create a situation where a company would be penalized in the next year for service that is above the historical benchmark, but not above the newly established benchmark that reflected a service improvement. This outcome is contrary to the overall design and intent of a PBR plan, which establishes a system of incentives guide utility management at the outset of the plan, and to the proposition that, during the operation of the PBR plan, service quality must not decline. In order to provide optimum regulatory incentives under PBR, it is necessary for utilities to have knowledge about rate changes (through an established ratemaking formula) and certainty about the ramifications of management actions that may affect service

performance. Without such regulatory certainty, utilities will not be able to plan for and manage costs, thereby maximizing future benefits for customers.

Moreover, because the Test Statistic adjusts for a small data size and ensures that there is 95 percent confidence that a penalty is appropriate, there is no need to increase the data size artificially in order to improve the statistical accuracy. Therefore, the Utility Companies propose that performance benchmarks and associated deadbands be established at the outset of the PBR plan where a company has at least three years of historical data available. That benchmark should remain fixed for the term of the plan. If a company has less than three years of data for a particular metric, which means that even the application of the Test Statistic is not appropriate, SQI penalties should not be imposed until a benchmark and deadband can be established using at least three years' data. Thus, the Utility Companies propose that, in those situations, the benchmark could be established during the PBR plan period (at the point that three years' data are available). Once established, the benchmark would be fixed for the remainder of the PBR plan. At the outset of the next PBR cycle, the data accumulated during the period of the previous PBR plan would be included in the calculation of the benchmark so that customers benefit from any service improvements made during the previous PBR plan.

V. CONCLUSION

The Utility Companies appreciate the opportunity to clarify these remaining questions from the Department Staff. If there are any follow-up matters or additional questions, the Utility Companies would be pleased to respond.